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PHOTOGRAPHIC INTELLIGENCE REPORT

COMPARISON OF
POSSIBLE AMM-ASSOCIATED FACILITIES
AT MOSCOW AND SARY-SHAGAN, USSR

25X1D



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ERRATA

On page 1, the reference to Figure 1 in paragraph 3 should be deleted. 25X1D

On page 15, in the data for [REDACTED] the second reference to item 5 should be changed to item 6.

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PREFACE

This report compares developments and configurations at the possible antimissile missile (AMM) associated facilities at Launch Complex B, Sary-Shagan Antimissile Test Center (SSATC), and at one of the four modified SA-1 SAM sites in the Moscow area. The information presented is derived from a study of TALENT and KEYHOLE photography available as of [REDACTED]. The report is prepared under project C-1262 '63 in answer to CIA requirement C-RR3-80,548.

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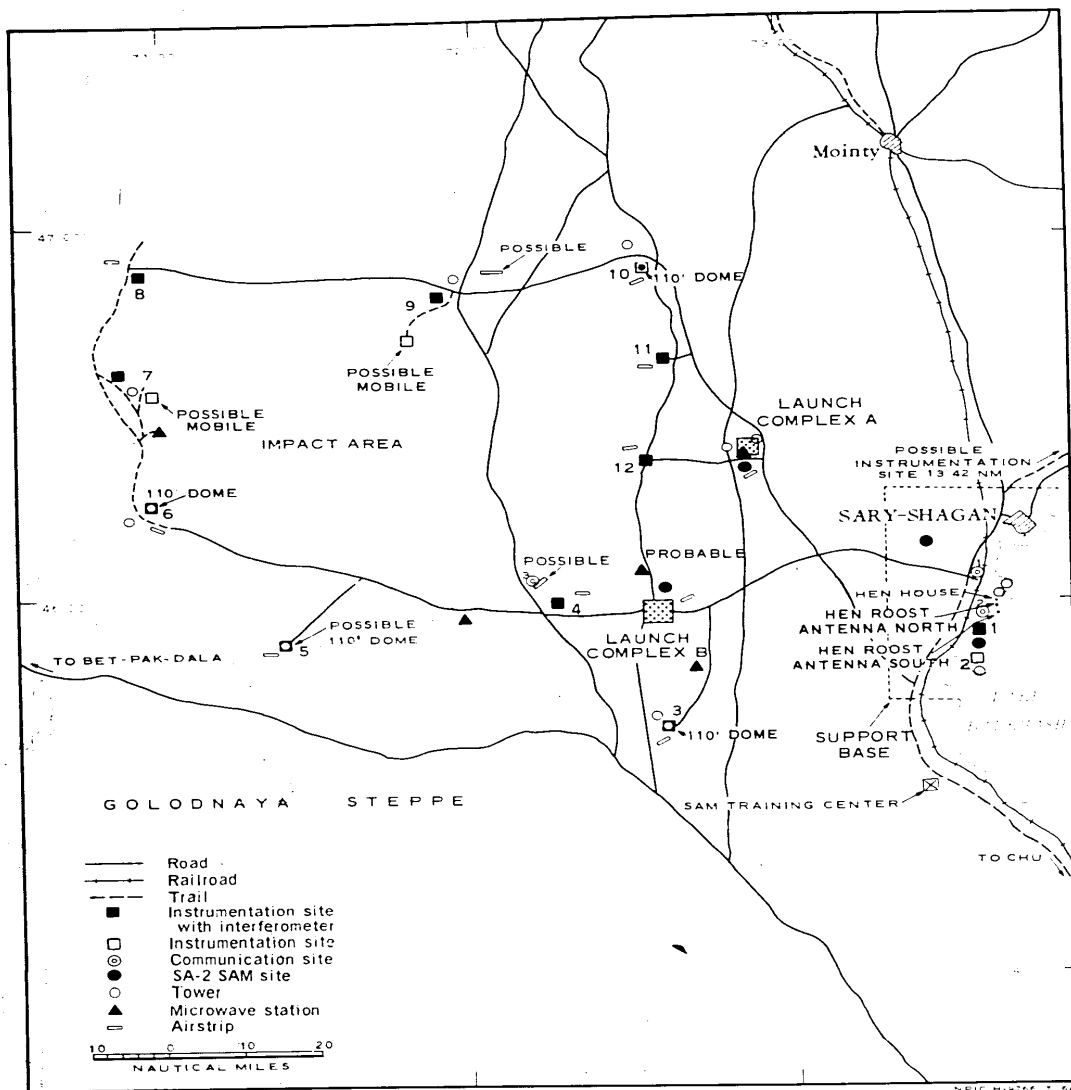


FIGURE 1. LOCATION OF LAUNCH COMPLEX B, SSATC, USSR.

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INTRODUCTION

A preliminary analysis of the similarities between the possibly AMM-associated, modified SA-1 SAM sites near Moscow and the similar facilities at SSATC as of [REDACTED] was published in NPIC/R-147/63. 1 This report supplements that analysis; it covers changes introduced at the Moscow sites between [REDACTED] and, particularly, changes discernible in the facilities at SSATC between [REDACTED]

Construction of all the possible AMM-associated facilities (modified SA-1 SAM sites) near Moscow follows the same general pattern; it probably commenced at approximately the same

time and progressed at similar rates. For this comparison, SAM Site E33-1 has been selected as an illustration of all four possible AMM-associated sites in the Moscow area, and it is compared with the relatively new area containing a triad of buildings at Launch Complex B, SSATC. This new area is designated as Facility C. Selected features of the Sary-Shagan facility and the Moscow site correspond to the prototype herringbone pattern at the Kapustin Yar/Vladimirovka Missile Test Center (KY/Vlad MTC), USSR. A chronology of construction activity at Site E33-1 and Facility C is given in Table 3.

POSSIBLE AMM SITE IN THE MOSCOW AREA

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Moscow SAM Site E33-1 [REDACTED] is located at 56-20N 36-48E (Figure 1). Site preparation for the triad of buildings (items 1, 2, and 3, Figure 2) was first discernible on photography of [REDACTED]. Building construction in the support area was observed on photography of [REDACTED]. The buildings constructed in the triad and in the support area at Site E33-1 are typical of the possible AMM sites in the Moscow area. Item numbers are keyed to Figure 2 and Table 1.

These three form a T-shaped pattern approximately 800 feet from the large building (item 1). Two structures probably similar to these (item 5) at Site E33-1 are located in a corresponding position at Site E05-1. Although these structures (items 4 and 5) may all be temporary construction support buildings, it should be noted that at Sites E33-1, E15-1, and E05-1 the three small rectangular structures (item 4) occupy the same position relative to the large building (item 1) and to each other.

BUILDING TRIAD AREA

Sites E33-1, E15-1, and possibly E05-1 have a group of three small rectangular structures (item 4) located approximately 500 feet from the large rectangular building (item 1). Sites E33-1 and E24-1 have two small rectangular structures with a possible third under construction (item 5).

A raised structure, approximately 70 feet long and possibly square, is under construction on the roof of the large building (item 1). This was observed for the first time on photography of [REDACTED]

New earth scarring within and near the

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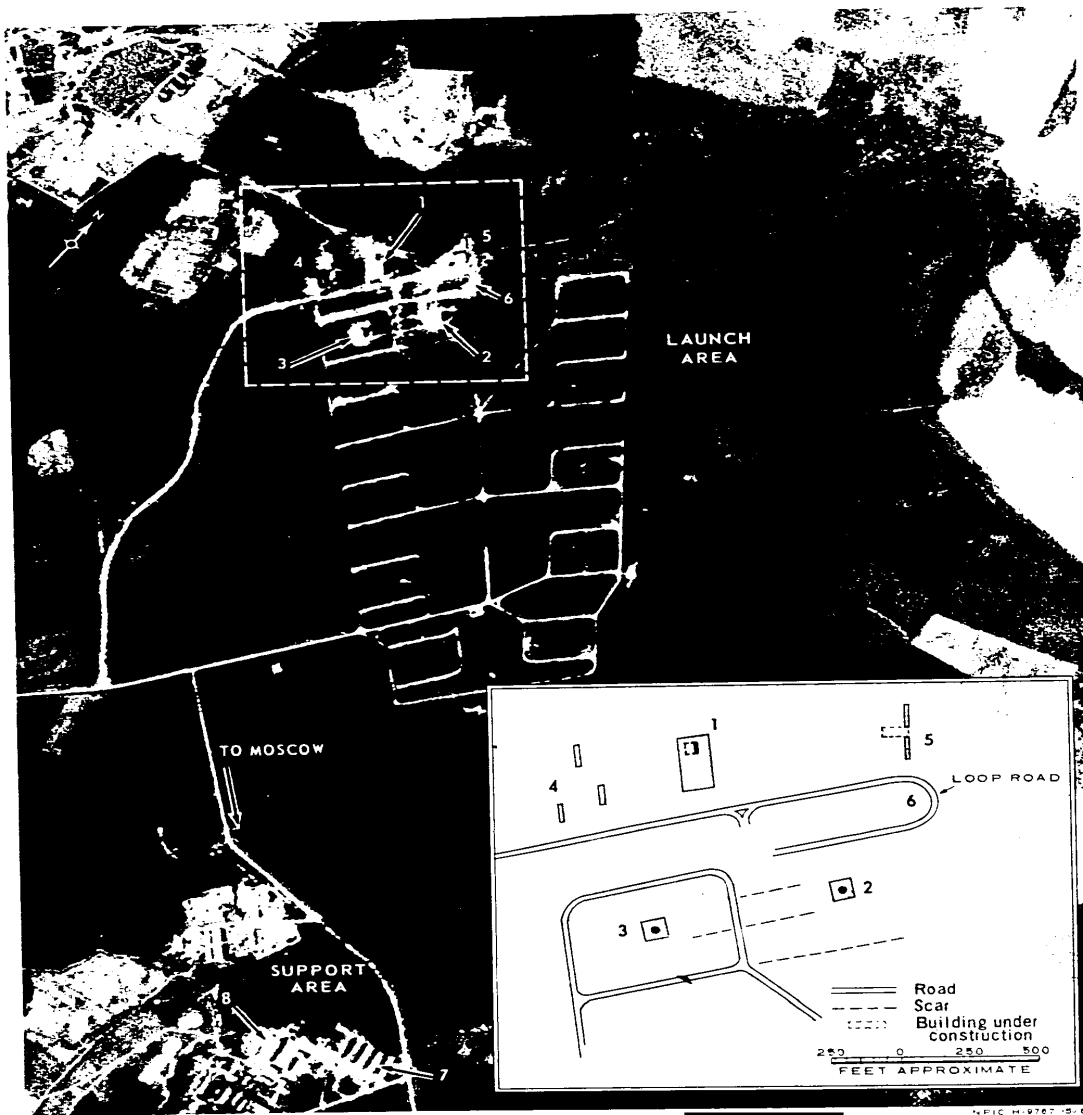


FIGURE 2. POSSIBLE AMM SITE E33-1, MOSCOW, [REDACTED]

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Table 1. Key to Items on Figure 2

Item	Description
1	Large rectangular bldg with u i structure on roof
2	Small square bldg
3	Small square bldg
4	3 rectangular structures
5	2 small rectangular structures and a possible 3d u c forming T-shaped pattern
6	Loop road, extension of the access road
7	Row of 5 possible housing units
8	Bldg similar to 5 bldgs in item 7

herringbone pattern at all the possible AMM sites in the Moscow area and at a number of other SA-1 sites appeared between [REDACTED]

(Figure 8 depicts the new activity at Site E33-1.)

The extension of the access road to the building triad area passes south of the three small rectangular structures (item 4, Figure 2) and the large rectangular building (item 1); it extends as far as the T-shaped pattern, then it loops in a wide-radius 180-degree turn (item 6) and returns to a cleared area adjacent to one of the rib roads of the herringbone launch area. The distance between the outside edges of the loop is approximately 260 feet. The road is about 25 feet wide and may be concrete surfaced. A strip 70 to 100 feet wide was cleared for the construction of the road; this includes a strip contiguous to a section of the herringbone road between buildings (items 1 and 3) of the triad. The loop road

and cleared areas form a distinctive pattern among the possible AMM facilities in the Moscow area.

SUPPORT AREA

New construction activity has been observed in the support areas at all of the possible AMM sites in the Moscow area. In each case, construction of four or five multistory buildings was apparently planned to begin prior to the commencement of construction on the triad of buildings. The new buildings are approximately 200 by 50 feet and may be three- to five-story structures. The location and appearance of these new buildings and the roads serving them suggest that they may be housing units. At each site four or five buildings are constructed in a row, with another building, possibly serving a different function, located nearby. These new buildings at Site E33-1 (items 7 and 8, Figure 2) have an estimated total floorspace of 180,000 to 300,000 square feet. If they were troop barracks, allowing 60 square feet per person, each could house between 500 and 840 personnel; however, if they were designed as family apartments, the number accommodated would be much smaller.

FACILITY C, LAUNCH COMPLEX B, SSATC

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Major components of the four possible AMM facilities at the SSATC follow the same general pattern, with variations probably the result of system development and testing. Significant variations observed at Facility C, Launch Complex B (46-01N 72-29E; [REDACTED]) presented the first evidence of a possible launch

facility directly associated with the triad of buildings (Figure 3). Item numbers are keyed to Figure 4 and Table 2.

BUILDING TRIAD AREA

Site preparation for the triad of buildings (items 1, 2, and 3) was first discernible on pho-

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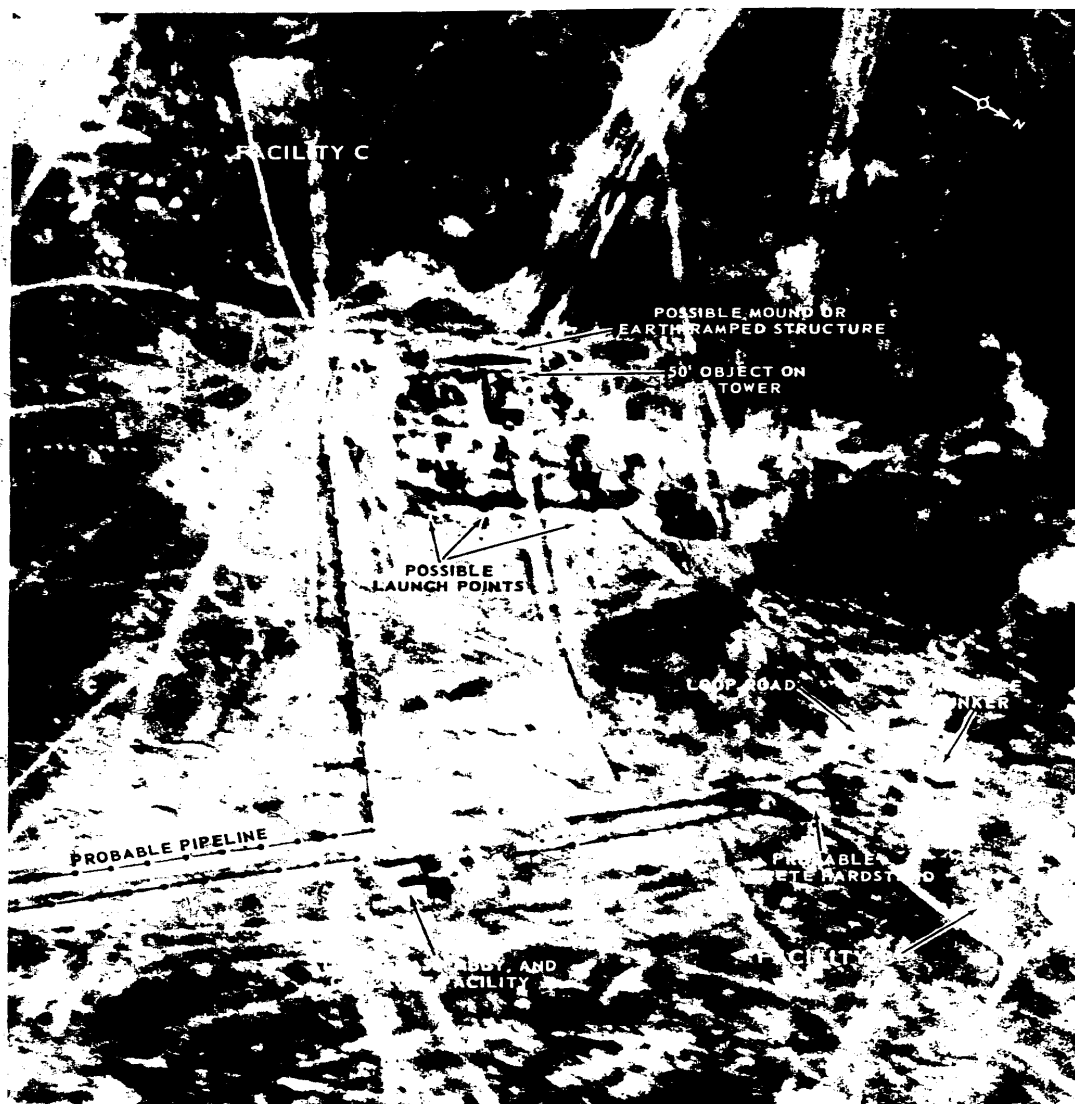


FIGURE 3. FACILITY C, LAUNCH COMPLEX B, SSATC, [REDACTED]

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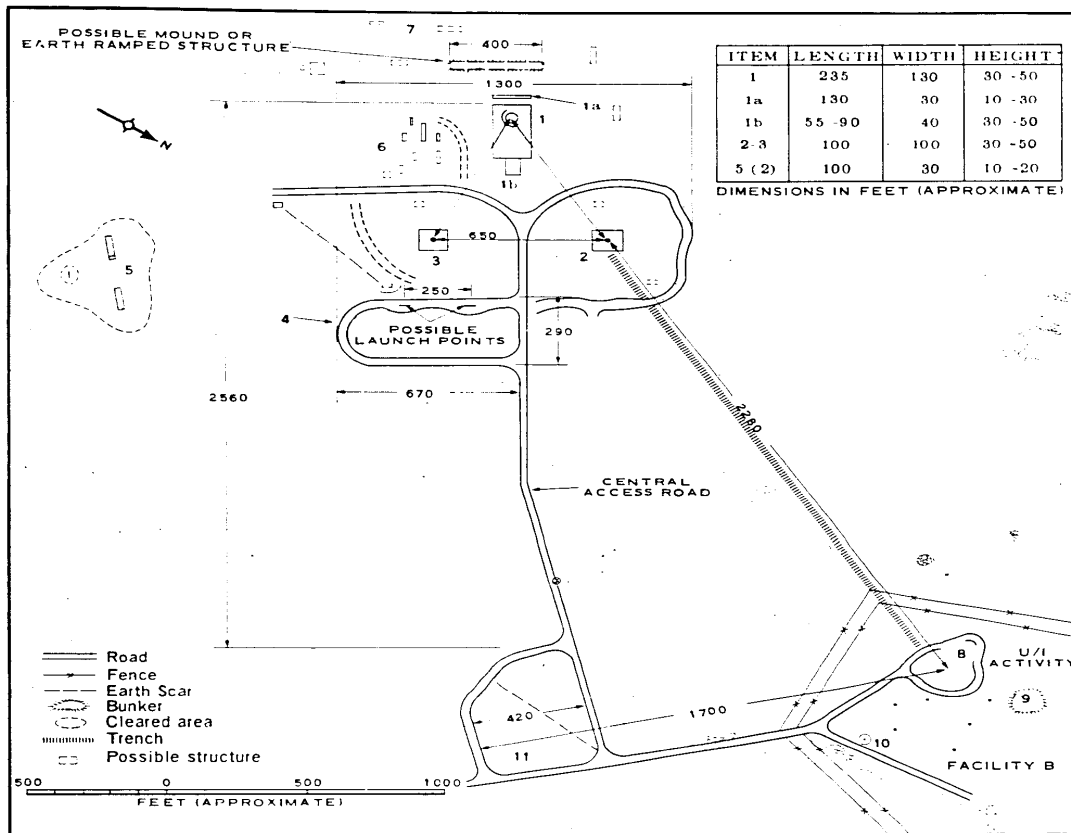


FIGURE 4. RECTIFIED LINE DRAWING OF BUILDING TRIAD AREA, FACILITY C, SSATC.

Table 2. Key to Item Numbers on Figure 4.

Item	Description	Item	Description
1	Large rectangular bldg with circular dish-shaped object on tower, 85 feet above roof level	4	Loop road
a	U-I structure associated with large bldg	5	2 rectangular structures - with a third u-i object
b	U-I structure associated with large bldg	6	Area of u-i activity with one large object and several smaller objects
2	Small square bldg with u-i object centered on roof	7	Possible bldgs
3	Small square bldg with u-i object centered on roof	8	Loop road and u-i activity
		9	Probable bunker
		10	Circular probable concrete hard-stand
		11	Loop road at intersection of access roads

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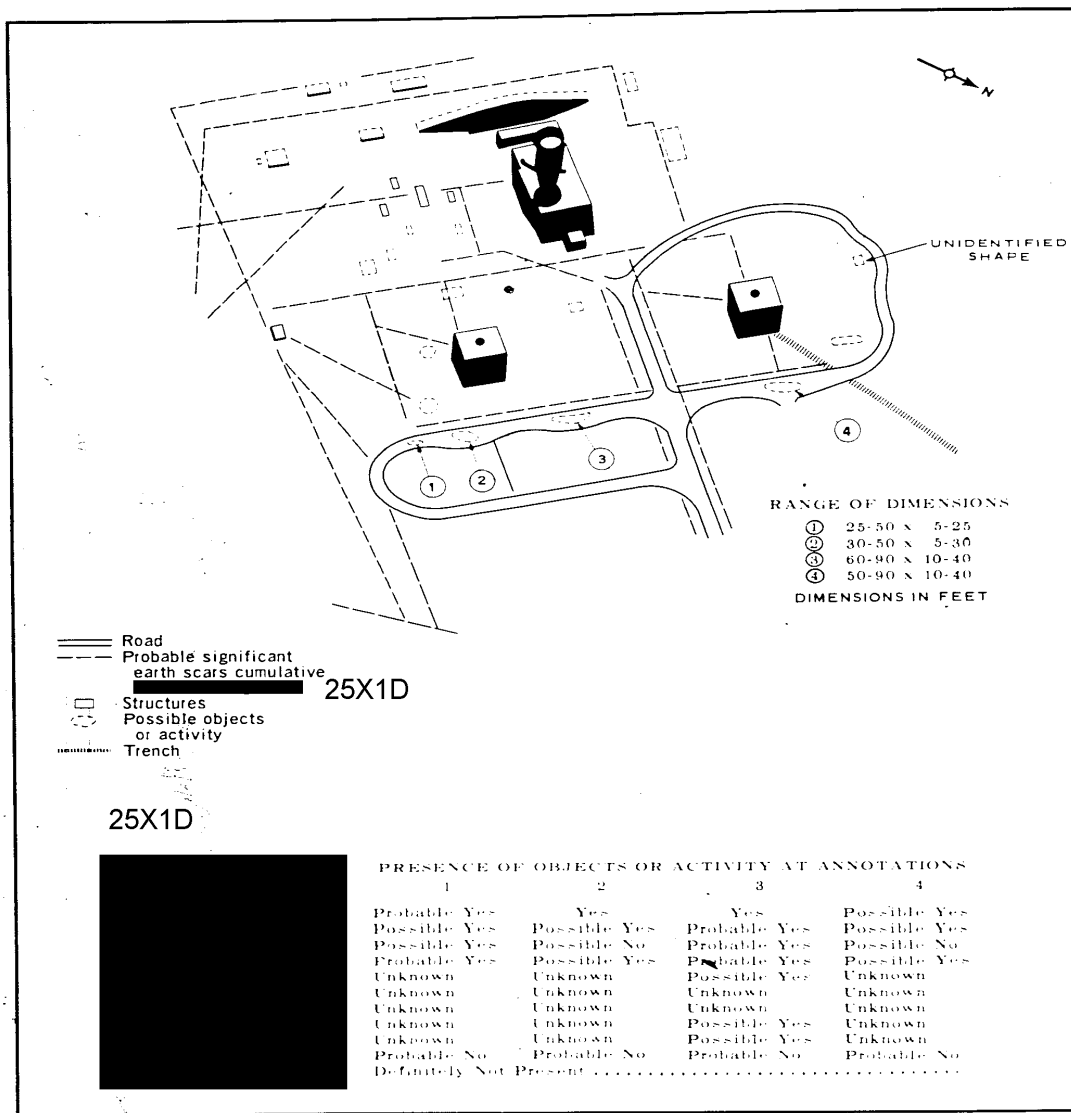
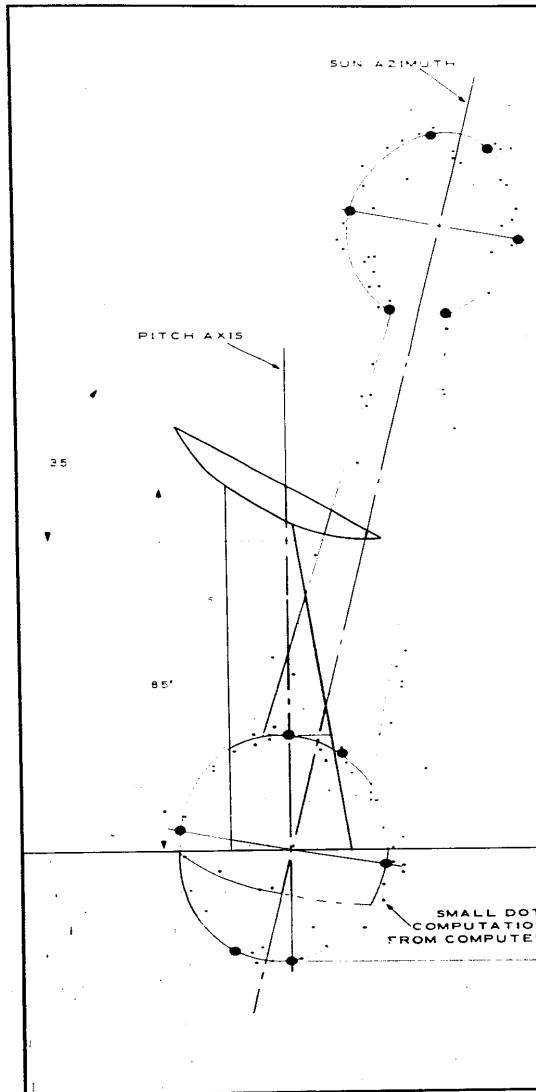


FIGURE 5. CHRONOLOGY OF UNIDENTIFIED OBJECTS OR ACTIVITY AND EARTH SCARRING AT FACILITY C, SSATC.

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topography of [REDACTED]. Construction of an oblong loop road in the tried area was first detected on photography of [REDACTED] the road was essentially as shown in Figure 4. Two possible launch points, located approximately 250 feet east-northeast of the small building (item 3), may have been completed by [REDACTED]. Unidentified objects or activity on or near the possible launch points has been detected over a period of [REDACTED]. A chronology of these observations including metrical data is given in Figure 5. A possible mound or earth-ramped structure, approximately 400 feet long, is located southwest of the large building (item 1). This was first observed on photography of [REDACTED]

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A circular object which appears to be a parabolic dish is mounted on an 85-foot tower constructed on the roof of the large building (item 1), and is interpreted as a suspect radar. The crescent-shaped shadow depicted in Figure 5 could only occur with a parabolic-type dish:

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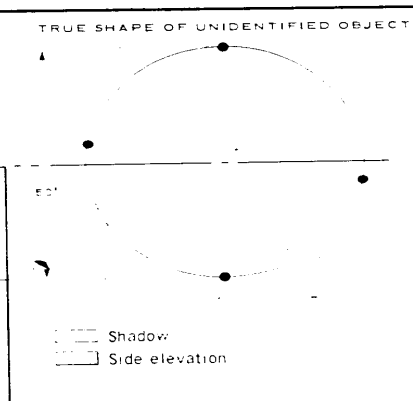
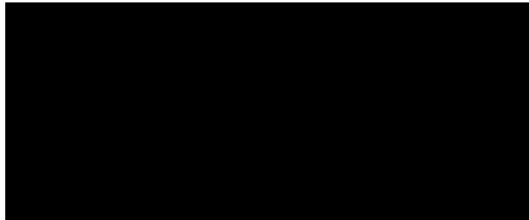


FIGURE 6. PHOTOGRAMMETRIC PROJECTION OF SUSPECT RADAR ANTENNA.

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A possibly raised section on the roof of the large building (item 1) is indicated by the fact that the shadow of the tower breaks as it crosses the roof of the building. The southeastern side of the building appears to curve outward slightly on photography of [REDACTED]. This feature (shown in Figure 5) has not been detected at any of the corresponding structures at either SSATC or Moscow.

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Several structures are separated from Facility C by a fence and are located within Facility B; however, they are probably associated with the more recently constructed Facility C. A probable bunker (item 9, Figure 4) may have been present in [REDACTED]. A circular probable concrete hardstand (item 10) was present before construction began on Facility C. A possible electronic device was observed on the hardstand on photography of [REDACTED]. A loop road (item 8) is within an area of unidentified activity. A trench connects this loop road with a building (item 2) in the triad area.

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An area of unidentified activity (item 6), approximately 200 feet southeast of the large building (item 1) contains several small structures. One low rectangular structure is approximately 90 by 20 feet. Grouped around this structure are three to six 50- by 20-foot suspect footings. Activity has been observed in this area since construction was first identified in the building triad area. A possible structure could be seen in the area on photography of [REDACTED] and a possible

cable or pipeline was visible entering the area. [REDACTED] photography revealed an apparent extension of this possible cable or pipeline from the area of unidentified activity to the large building (item 1). Figure 5 depicts all significant earth scars in cumulative portrayal.

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A loop road (item 11, Figure 4) at the intersection of access roads, approximately 2,000 feet northeast of the building triad and 400 feet west of an assembly and checkout facility (shown on Figure 3), has been present since [REDACTED]. No structure or activity has been observed in association with this loop road, other than an earth scar running through the enclosed area.

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SUPPORT AREA, LAUNCH COMPLEX B

Additions to the Launch Complex B support area (not on graphics) since [REDACTED] are as follows.

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(1) Storage, Assembly, and Checkout Area: Three buildings which are probably single story and have an estimated total floorspace of 4,500 square feet. These buildings were probably in place in [REDACTED].

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(2) Housing Facility: Five two-story and two single-story housing units having an estimated total floorspace of 39,700 square feet. These additions could accommodate 660 persons if they were used as troop barracks, allowing 60 square feet per man. Most of these new buildings were added between [REDACTED].

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(3) Possible Technical and Laboratory Facility: A probable single-story warehouse with 8,400 square feet of floorspace which may be used to store flammable materials. The slab foundation and fire walls were visible on photography of [REDACTED]. This addition was probably complete in [REDACTED].

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SIMILARITIES BETWEEN THE POSSIBLE AMM FACILITIES MOSCOW AND SARY-SHAGAN

The shape and spacing of two adjacent possible launch points (item 4, Figure 4) at Facility C, SSATC, are similar to the shape and spacing of the launch points at the prototype herringbone launch site at KY/Vlad MJC (Figure 7). The launch points at Moscow Site E33-1 are similar to the launch points at Kapustin Yar in size, shape, and spacing, although the curved prepared areas appear to be less prominent at Moscow than at Kapustin Yar. Figures 7 and 8 are similarly scaled line drawings of these sites with Facility C, Launch Complex B, SSATC superimposed for comparison.

A tower with a parabolic dish-shaped object is mounted on the roof of the large building (item 1) in the triad at Facility C, SSATC, and a raised structure is under construction at approximately the same location on the large building (item 1, Figure 2) at Moscow Site E33-1.

One of the small buildings (item 3, Figure 2) occupies the same relative position with regard to adjacent launch points at Site E33-1 as the corresponding building at Facility C (item 3, Figure 4) occupies with reference to nearby possible launch points. The site of this building at Moscow Site E33-1 was previously occupied by an SA-1 site control bunker.

An oblong loop road with wide-radius turns

is located within the triad areas at both the Moscow and SSATC facilities, although the placement of the road with reference to the buildings of the triad is different.

Approximately the same amount of unoccupied terrain surrounds the small buildings (items 2 and 3) at both the Moscow and SSATC facilities.

New construction has been observed in the support areas at the possible AMM sites near Moscow and at Facility C. Approximately 180,000 to 300,000 square feet of possible housing space has been added at Site E33-1, and approximately 39,700 square feet of probable housing space has been added to the support area at Launch Complex B, SSATC. However, there is no apparent correlation of size or shape between the buildings constructed at these two facilities.

A trench extending from one of the triad buildings (item 2, Figure 4) to a road-served area of unidentified activity (item 8, Figure 4) at Facility C, SSATC, is comparable to a possible trench at Site E33-1 which extends from the corresponding small building (item 2, Figure 2) to an area of unidentified activity as shown in Figure 8.

DIFFERENCES BETWEEN THE POSSIBLE AMM FACILITIES MOSCOW AND SARY-SHAGAN

The large building (item 1, Figure 2) at Moscow Site E33-1 does not yet have any associated structures which would correspond to those at Facility C, SSATC (items 1a and 1b, Figure 4). Structures similar to one of these

(item 1a) have been observed at all the possible AMM facilities at SSATC; however, they have not yet been constructed at any of the possible AMM sites near Moscow. The other structure (item 1b) at Facility C is unique.

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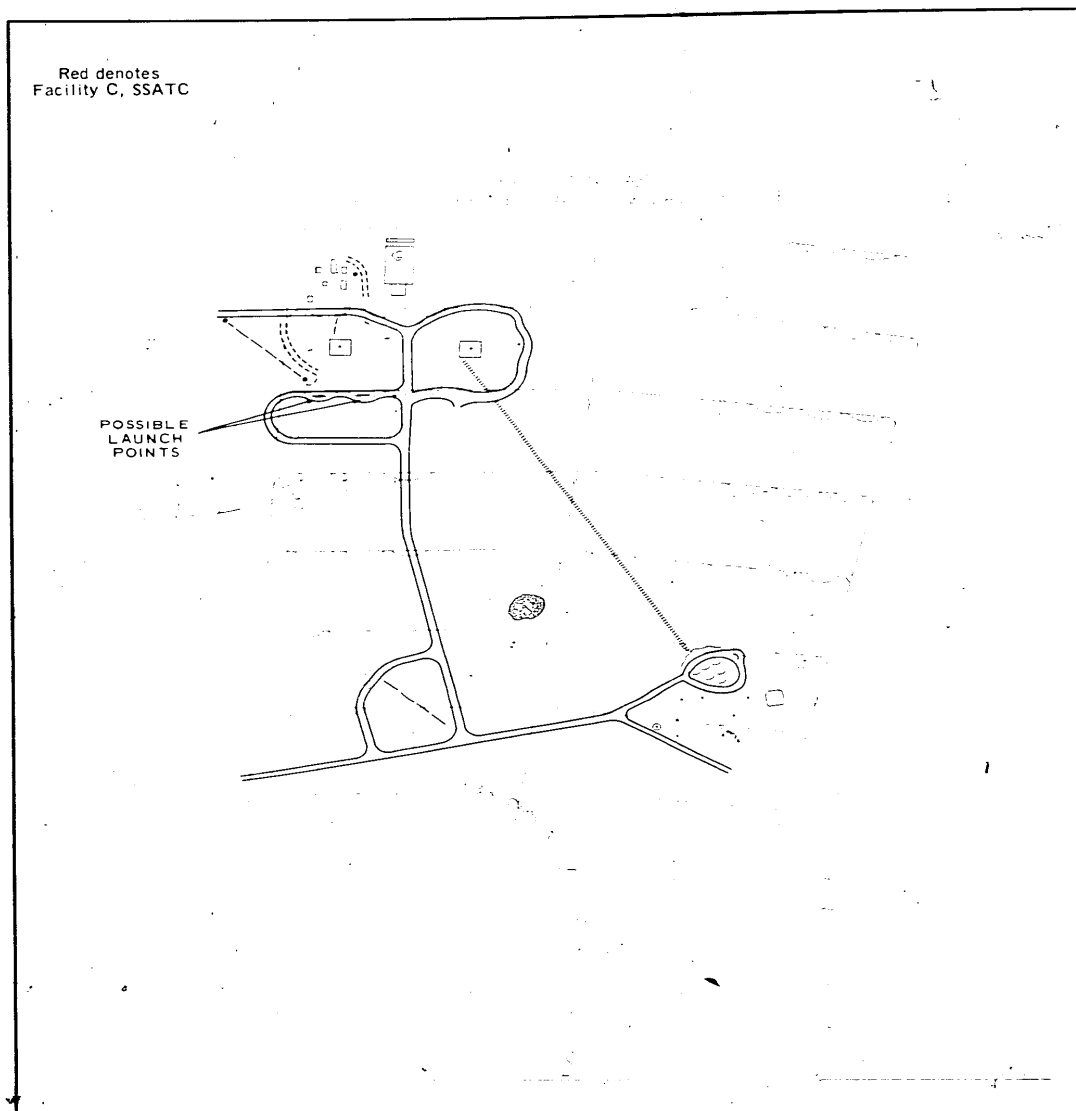


FIGURE 7. RECTIFIED LINE DRAWING OF FACILITY C, LAUNCH COMPLEX B, SSATC, SUPERIMPOSED ON PROTOTYPE HERRINGBONE LAUNCH SITE AT KY VLAD MTC.

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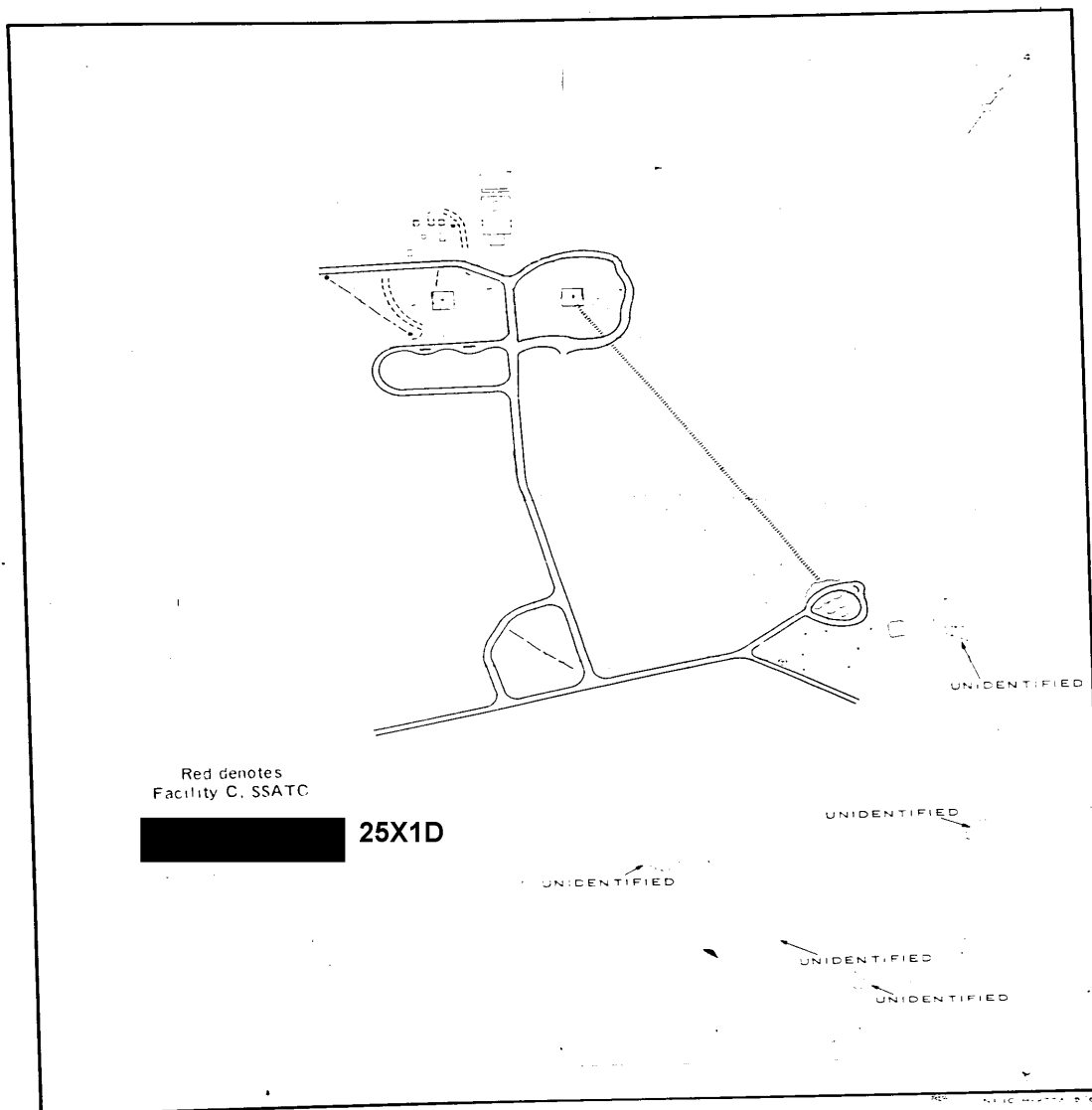


FIGURE 8. RECTIFIED LINE DRAWING OF FACILITY C, SSATC, SUPERIMPOSED ON MOSCOW SAM SITE E33-1.

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There is no apparent correlation between the position of the loop road (item 6, Figure 2) with reference to the triad of buildings at Moscow Site E33-1 and the position of the loop road (item 4, Figure 4) within the building triad area at Facility C.

One side of the large building (item 1) at Facility C appears to curve outward, probably as shown in Figure 5. This feature is not discernible at any of the corresponding buildings at the other possible AMM facilities at either Moscow or SSATC.

Structures (items 4 and 5, Figure 2) which are possibly integral components of the triad facility at E33-1 are not discernible at any of the possible AMM facilities at SSATC.

The position of new earth scars within the herringbone pattern at the Moscow facility, as

shown in Figure 8, does not appear to correlate with any significant features or activity observed at Facility C, SSATC.

Unidentified activity or objects have been observed at one or more of the SSATC possible launch points near the two small buildings (items 2 and 3) since [REDACTED] No similar features have been visible at Moscow Site E33-1.

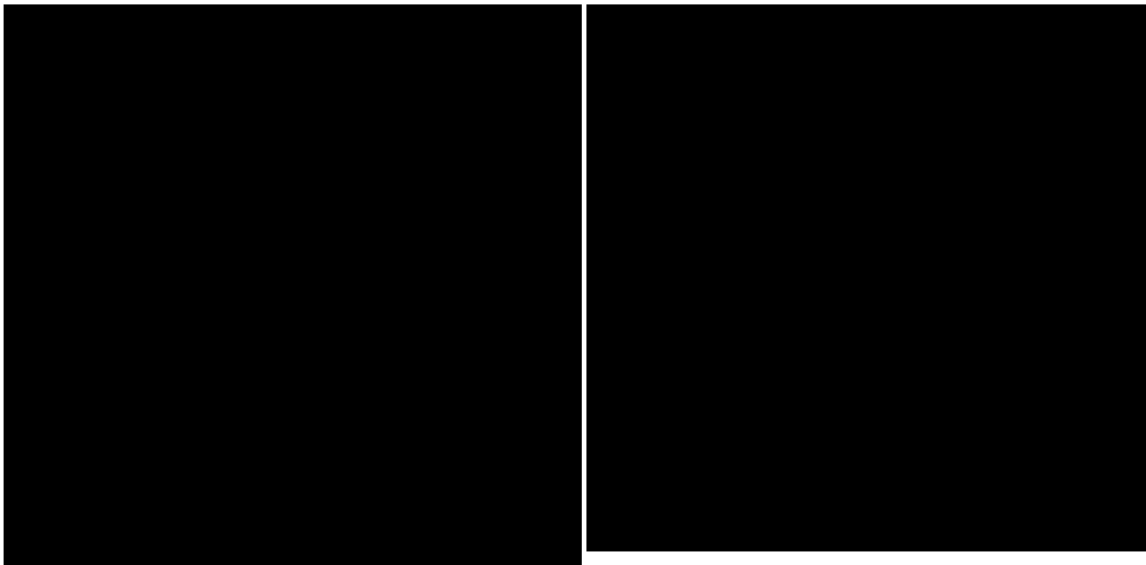
The large possible mound or earth-ramped structure (Figure 3) at SSATC has no counterpart at any of the other possible AMM facilities at either Moscow or SSATC.

The small rectangular unidentified objects (item 6, Figure 4) located approximately 250 feet from the large building at SSATC have no counterpart at any of the other possible AMM facilities at either Moscow or SSATC.

DISCUSSION

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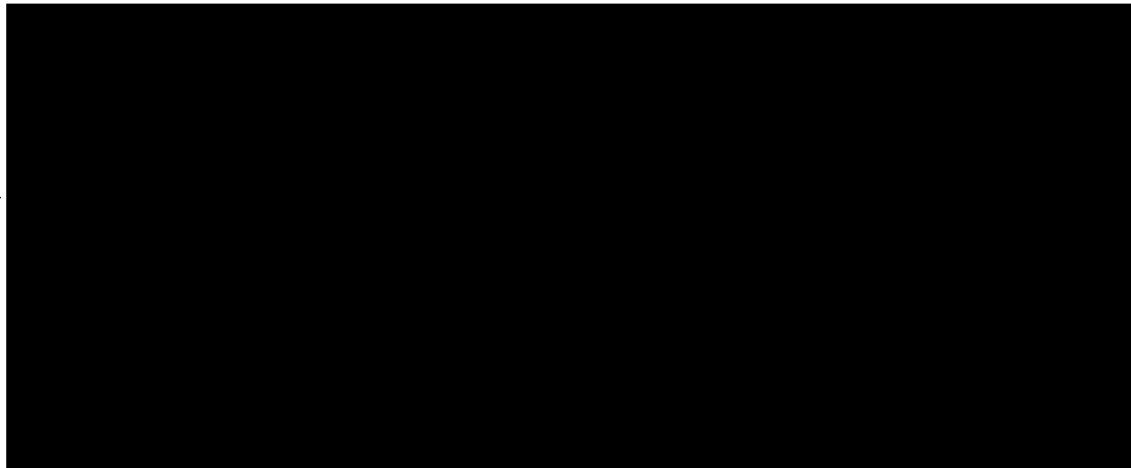


Table 3. Chronology of Construction Activity at Moscow SAM Site E33-1 and Facility C, SSATC

SAM SITE E33-1, MOSCOW Item Numbers are Keyed to Figure 2	FACILITY C, COMPLEX B, SSATC Item Numbers are Keyed to Figure 4
No photo coverage.	No evidence of construction activity.
No photo coverage.	No change can be detected.
Very poor photo quality -- identification only.	Early stages of site preparation in the triad area with extensive earth scarring, but no evidence of building foundations. A loop road (item 8) is possibly under construction.
No photo coverage.	No photo coverage.
<p>This is the first mission which produced interpretable photography. None of the buildings of the triad are present, nor is there any sign of foundations or footings. However, ground scarring can be detected between the large building (item 1) and the T-shaped pattern (item 5). Five 200 by 50-foot buildings are present in the support area. Of these, four are arranged in a row while the fifth is located nearby. The road leading south from the northwestern corner of the herringbone site is hardly visible and possibly lightly used.</p> <p>Portions of the herringbone pattern are cloud covered. The possible construction activity (scarring) noted on [redacted] cannot be seen; however, this is possibly due to poor photo quality. A portion of the road leading south from the northwestern corner of the herringbone site is visible. The road is more prominent, indicating a possible increase in its use for access to construction activity in what is now referred to as the building triad area.</p>	<p>25X1D Construction on the triad of buildings is apparently in advanced stages, with all walls and probably the roofs in place. The small structure (item 1a) southwest of the large building cannot be seen. Unidentified construction activity adjacent to the large building is noted. Trenches in the triad area are visible and a loop road (item 8) is possibly under construction.</p>

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Table 1. (Continued)



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	SAM SITE E33-1, MOSCOW Item Numbers are Keyed to Figure 2	FACILITY C, COMPLEX B, SSATC Item Numbers are Keyed to Figure 4
	No photo coverage. 1	Construction activity is in evidence throughout the area of the triad installation; however, the structure (item 1a) southwest of the large building is probably still missing. Evidence of construction activity on an oblong loop road pattern northeast of the triad of buildings is noted for the first time. The loop road (item 8) is probably complete. Trench work can be seen in the area. A road loop around one of the small buildings (item 2) is possibly under construction.
	No photo coverage. 25X1D 25X1D The quality of this photography is poor; however, possible construction activity in the building triad area can be detected. The access road to the building triad area is more prominent, possibly indicating increased use since [redacted]. Photo quality precludes analysis of support area structures. [redacted] no coverage.) Partial cloud cover and poor quality. Possible construction activity can be seen in the building triad area. A probable sixth large building is present in the support area; it is similar to and in line with the four buildings previously observed.	No change can be detected since the last mission. [redacted] A structure (item 1a) is seen under construction for the first time. Other construction activity continues. 25X1D [redacted] Small buildings (items 2 & 3) appear complete with objects on the roofs. Construction activity can be seen on the roof of the large building (item 1). 25X1D Construction activity continues. A trench to the large building appears to have been enlarged.
	No photo coverage.	The small structure (item 1b) in back of the large building is seen for the first time. It is not possible to tell if this structure extends to the edge of the large building, as it is partly hidden by shadow. Three buildings may be under construction in a new area of activity (item 5). A possible mound or earth-ramped structure has been added in front of the large building. Two small possible buildings (item 7) can be seen approximately 300 feet south of this feature. The activity approximately 200 feet southeast of the large building continues: a small, low rectangular structure with two or more smaller shapes nearby can be seen. A possible crane is nearby. Two possible launch points can be seen off the loop road approximately 250 feet east-northeast of the small building (item 3). A suspect third launch point is located east-northeast of the other small building of the triad (item 2).
	25X1D 25X1D No photo coverage on [redacted]. Two buildings (items 1 and 2) appear complete; however, possible construction activity continues on the top rear portion of the large building (item 1). Another building (item 3) appears to be incomplete. An un-	Construction activity continues in the area southeast of the large building and on the loop road (item 4) in back of the triad of buildings. A circular dish-shaped object, approximately 50 feet in diameter, can be seen on or near the ground alongside the large building. It may be

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Table 1. Continued

	SAM SITE E33-1, MOSCOW Item Numbers are Keyed to Figure 2	FACILITY C, COMPLEX B, SSATC Item Numbers are Keyed to Figure 4
	<p>identified small object is centered on the top of one of the small buildings (item 2). Possible footings or foundations for the structures in a T-shaped pattern (item 5) are in place. Three buildings (item 4) are possibly in place. The row of five large buildings is prominent in the support area, approximately 9,000 feet southeast of the building triad area. The sixth building, similar in size, is located about 700 feet to the southwest. A loop road with a wide-radius turn is prominent between the large building and the two small buildings in the triad.</p> <p>No photo coverage.</p> <p>Partial cloud cover and haze limit interpretation. No changes can be seen.</p>	<p>the dish which later photography reveals atop the tower, yet to be completed on the roof of the large building. Construction of a trench between a small building (item 2) and the loop road is in progress. A possible trench or ditch can be seen on the south side of the loop road (item 8).</p> <p>No cover. 25X1D</p> <p>Construction activity in the area continues. The large building (item 1) is probably complete. A tower is being constructed on the front portion of the roof of the large building. The tower is now approximately 40 feet above roof level.</p> <p>Construction activity continues. The loop pattern of roads in the triad area is now more distinct. Two probable buildings (item 5) are now visible. The loop road encircling the building at item 2 bends outward, and an unidentified shape can be seen just inside this bend. Earth scarring can be detected at the loop road (item 8). A trench from the building at item 2 to this loop road is complete. Activity in the area southeast of the large building continues (item 5). The central structure in this area is approximately 90 by 20 feet in size. Grouped around this long narrow structure are three to six 50- by 20-foot structures. All structures are low, casting little or no shadow. The tower on the roof of the building is complete. It is 85 feet tall, 40 to 50 feet wide at the base, and has a 50-foot circular dish-shaped object at its top. The dish is elevated at an angle of 55 degrees from the horizontal, on an azimuth of 85 degrees.</p> <p>No photo coverage.</p>
25X1D		
25X1D	 <p>All three buildings in the triad appear to be complete. The small buildings (items 2 & 3) have an unidentified small object centered on each roof. A raised structure, about 70 feet long and possibly square, is being constructed on the rear portion of the large building. The top of the raised structure is 15 to 30 feet above the level of the roof. New track activity and earth scarring are noted in the herringbone pattern since the last mission. This new activity is depicted on Figure 8.</p>	

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REFERENCES (Continued)

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- SAC. US Air Target Chart, Series 200, Sheet 0167-5HL, 2d ed, Apr 63, scale 1:200,000 (SECRET)
- SAC. US Air Target Chart, Series 200, Sheet 0154-22HL, 2d ed, Mar 63, scale 1:200,000 (SECRET)
- SAC. US Air Target Chart, Series 200, Sheet 0167-4HL, 2d ed, Mar 63, scale 1:200,000 (SECRET)
- SAC. US Air Target Chart, Series 200, Sheet 0167-10HL, 2d ed, Feb 63, scale 1:200,000 (SECRET)
- SAC. US Air Target Chart, Series 200, Sheet 0167-9A, 1st ed, Jan 59, scale 1:200,000 (SECRET)

SSATC

- AMS. Series DESPA-1, Sheet NL43-4, 1st ed, Jun 62, scale 1:250,000 (TOP SECRET RUFF)
- AMS. Series DESPA-1, Sheet NL43-7, 1st ed, Jun 62, scale 1:250,000 (TOP SECRET RUFF)
- AMS. Series DESPA-1, Sheet NL43-5, 1st ed, May 62, scale 1:250,000 (TOP SECRET RUFF)
- SAC. US Air Target Chart, Series 200, Sheet 0245-15AL, 2d ed, Mar 63, scale 1:200,000 (SECRET)
- SAC. US Air Target Chart, Series 200, Sheet 0245-9-200AL, 2d ed, May 61, scale 1:200,000 (SECRET)
- SAC. US Air Target Chart, Series 200, Sheet 0245-14AL, 3d ed, Mar 61, scale 1:200,000 (SECRET)
- SAC. US Air Target Chart, Series 200, Sheet 0245-10AL, 2d ed, Jun 60, scale 1:200,000 (SECRET)

DOCUMENTS

1. NPIC. R-147-63, *Possible Antimissile Missile Associated Facilities, Moscow Area, USSR*, Jul 63 (TOP SECRET CHESS RUFF)

25X1D

RELATED DOCUMENTS

- Air Technical Intelligence Study TIS-GM-59-1, *Survey of Surface-to-Air Guided Missile Capabilities*, Task No 616301, Jan 59 (SECRET)
- NPIC. R-61-63, *Antimissile Test Center Sary-Shagan, USSR, Changes and Additions as of [REDACTED] Apr 63* (TOP SECRET RUFF)

REQUIREMENT

CIA. C-RR3-80,548

PROJECT

C-1262-63

TOP SECRET CHESS RUFF